



WASHRAGTM



VOLUME 19 ISSUE 04
APRIL 2017

NEW BANDS!

SEE PAGE 12

Wireless Association of South Hills

N3SH WA3SH NP2SH/B

www.n3sh.org www.washarc.org



WASHRAG™



VOLUME 19 ISSUE 04

APRIL 2017

Next Monthly Meeting: Thursday, March 6th, 2017

The next meeting of the **WIRELESS ASSOCIATION OF SOUTH HILLS, INC.** will be on **Thursday, April 6th 2017**, in the Conference Room at the **St. Clair Hospital Outpatient Center, 2000 Oxford Drive, Bethel Park, by South Hills Village & Village Square** (map on the back page). The room is available at 6:30 PM. The meeting will be starting at 7:00 PM.

Our guest speaker will be Mike Lazaroff K3AIR, the ARRL WPa Section Volunteer Counsel, who will be talking about PRB-1 and related legislation, HOA issues, and anything about antenna restrictions in WPa. See you there!

Cover Photo: The then-experimental VO1NA Low Frequency Antenna, circa 2014, for testing propagation and reception on the new 472—479 kHz / 660 Meter Band. See news brief on Page 12 about our new bands!

Photo courtesy of the American Radio Relay League & © Copyright 2014 Joe Craig VO1NA

WASH 2017 OFFICERS

EXECUTIVE COMMITTEE:

| | |
|----------------|--------------------------|
| President | Glen Roberts KE7FD |
| VP / Secretary | Harold Rosenberger K3HCR |
| VP / Treasurer | Mark Stabryla N3RDV |

AND WE COULDN'T DO IT WITHOUT:

| | |
|--------------------------------|------------------------------|
| N3SH Trustee | Larry Comden K3VX |
| WA3SH Trustee | Rich Danko N3SBF |
| NP2SH Trustee | Paul Jordan NP2JF |
| N3SH WA3SH NP2SH/B QSL Manager | Ron Notarius W3WN |
| NP2SH 2009 QSL Manager | Carl Schroeder K9CS |
| VE Team Liaison | Ron Notarius W3WN |
| Webmaster | Sean Sleeman N3NWR |
| Asst. Webmaster | Ben Williams KB3ERQ |
| Quartermaster | Harold Rosenberger K3HCR |
| WASH FM Net Manager | Chuck Bihun KC3ELA |
| WASHFest 2018 Committee | Carol Danko KB3GMN, Chairman |
| | Bill Hill W3WH, Co-Chair |
| Activities & Operating Events | Rick Bell KB3IAC |
| Ways & Means | Carol Danko KB3GMN |
| WASH 2M Contest Chair | Jim Sanford WB4GCS |
| Field Day 2017 Coordinators | Rick Bell KB3IAC |
| | Bill Hill W3WH |

CLUB-AFFILIATED REPEATERS, BEACONS, & DIGIPEATERS:

| | | | |
|---------------|-----------|-----------------|--------------------|
| Mt. Lebanon | N3SH / R | 146.955 MHz (-) | PL 131.8 |
| North Side | N3SH / R | 442.550 MHz (+) | PL 131.8 |
| Canonsburg | N3FB / R | 443.650 MHz (+) | PL 131.8 |
| St. Johns, VI | NP2SH / B | 28.276 MHz | Propagation Beacon |
| Canonsburg | N3SH | 144.390 MHz | APRS Digipeater |

N3SH / WA3SH WASHNet, the weekly on-air net of WASH, meets every **Monday** Night, 8:00 PM ET, on the 146.955 & 443.650 repeaters. All radio amateurs, WASH members or not, are welcome to join in!

THE LEGAL STUFF

"The WASHRag™" (formerly **"The Mariner™"**) is the Official Newsletter of the **WIRELESS ASSOCIATION OF SOUTH HILLS, INC. (WASH)**, a 501.C.3 not for profit organization.

Published Monthly with occasional Special Editions as warranted.

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Editor & Publisher: Ron Notarius W3WN

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Ron Notarius W3WN
3395 Rosewood Drive, Castle Shannon, PA 15234-2546
e-mail: **newsletter at n3sh dot org or w3wn at arrl dot net**

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The **WIRELESS ASSOCIATION OF SOUTH HILLS, INC.** was founded on August 23rd, 1993, as the original **SOUTH HILLS AMATEUR RADIO CLUB**, and operated under that name through 1998. WASH was also known briefly in late 1998 as the **N3SH AMATEUR RADIO CLUB**. It is not in any way affiliated with the "South Hills Amateur Radio Club, Inc." and is not responsible for that group, it's members, or it's actions in any way, shape, or form.

As always, special thanks to the owners & operators of both the N3SH/R Repeaters and the N3FB/R Repeater System for permitting the **WIRELESS ASSOCIATION OF SOUTH HILLS, INC.** and it's members to use their repeaters for club purposes.

WASH Amateur Radio Club News Briefs

Next WASH VE Test April 20th

The Next WASH VE exam sessions will be **Thursday**, April 20th, 2016, 7:00 PM, at the **WPXI Community Room**, 4145 Evergreen Road, Pittsburgh, PA 15214. Talk-in on the 146.955 MHz and 443.650 MHz repeaters. All examiners are ARRL VEC affiliated.

Pre-registration is not required. Walk-ins welcome!

But if you plan on attending the test session, please contact VE Team Liason Ron Notarius W3WN:

Telephone (412) 572-6723 or E-Mail: w3wn@n3sh.org

Please bring the following to your test session:

Picture ID or other suitable identification (2 forms of ID required)

Pen / Pencil / Calculator

Original FCC license plus a copy of license (if upgrading)

Original CSCE plus a copy of CSCE (if upgrading)

Check or Cash in the amount of \$15.00 (payable to: ARRL VEC)

2017 test dates: July 20th
 October 19th

Glen's Musings



Let me first congratulate all those who participated in the annual A.F.I.E.L.D.* event this year, which involvement put **WASH** in first place. We couldn't have done it without your help; you know who you are.

Welcome to Spring! With that comes antenna work, and allergies, contests and family commitments, cutting the grass and cutting [buried] radials.

There's plenty of things that need to get done, both on and off the air. Mike K3AIR will present on PRB-1 and H.O.A. topics at the April meeting; ALL who are reading this newsletter are invited to attend.

Upcoming topics include Inverted-L antennas in May (rescheduled from March), Field Day planning in June, and other things including but not limited to a presentation about the meter connected to your power mains. All in all, it's a great time to be a ham and part of WASH!

*April Fools Ill-mannered Effective Laughable Distraction

— 73, Glen Roberts KE7FD

President, Wireless Association of South Hills, Inc.
N3SH / WA3SH / NP2SH/b

World War I commenced in Europe in August 2014. The US officially entered the war on April 6th, 2017, and on that date, the US government ordered most private radio stations (including Amateur) to shut down or be taken over by the government for the duration.

This month marks the centennial of that event.

Information courtesy of Mike Marinaro WN1M and US Early Radio History by Thomas H. White

Saturday, March 25th wasn't quite Spring yet, despite what the calendar said, which never did stop the faithful of **the WASH Breakfast Gang** to gather once again at **Suzie B's**, 950 South Central Avenue (Route 910 at the intersection of Route 519 at US 19) in Canonsburg. The gang this month was comprised by WB4GCS, N3FB, K3HCR, K3SGT, N3IDH and W3WN. Topics of the morning included a prediction of 8 feet of snow on Monday, since the snow tires were coming off on Sunday; NHRC voter controller to be installed, along with a de-emphasis circuit w/a buffer; cheat sheets for Spice software; HD Graphics going on the air by 5:30; "you can't get Fox News over the air!"; a penny for every year, but you're not worth \$1; replacement cars — AWD vs 4WD; a 50 HP motor on each wheel; newspaper delivery, or lack thereof; the end of Radio Shack is in sight; doing the crossword puzzle online; 440 MHz ATV; and a whole lot more.

Our next gathering of the Gang will be on Saturday, April 29th, as usual at **Suzie B's**, 950 South Central Avenue (Route 910 at the intersection of Route 519 at US 19), Canonsburg, officially starting at **8:00 AM**. Our "usual" tables will be reserved, but **please** let Jim WB4GCS know ahead of time, so that Suzie & her crew will have enough space available for us. (We really don't want to fight the State Police for seats... we'd lose!) See you there?

A final word from Carol KB3GMN on **WASHFest 2017**:

Just a little note to say thank you to all those who participated in helping with the Hamfest. Even though we had to move to a new location it was a GREAT SUCCESS. I will have a complete report at the meeting on Thursday.

I got a lot of nice remarks and they liked our new location. Just remember the reason for our success is the wonderful members of this club always asking what they can do. Without your help and hard work I would not be able to accomplish the hamfest.

Of course I can not forget my right arm and we all know who that is { N3SBF }.

By the way everyone said the food was great and we all know who to thank for that { KB3IAC }. And last I would like to thank Chuck who volunteered to spend the night. The VE session went off with out a hitch.

What else can I say — except now it is time to start all over again [2018], and with this club I sure it will be another great HAMFEST.



The **WASH VE Sessions** for the remainder have been set, as you can see above. We're back on our "3rd Thursday of the first month of the quarter" schedule. As always, we will need a few of the club VE's to help out at the session (we already have one candidate pre-registered for April), so anyone who can come, please contact W3WN.

Our thanks once again to Frank Bobro N3FB for making the arrangements, and WPXI for generously allowing us to use their Community Room for the upcoming exam sessions.

Speaking of VE's, **congratulations** to our newest Volunteer Examiner, Bill Zeitz WA3VSS, who was just credentialed by the ARRL VEC! Congratulations Bill, and welcome to the club!

If something seems missing this month... the **WASHNet NCS schedule** is taking a break. Since Chuck KC3ELA has been running most of the nets this year, it seemed pointless to run a calendar with just his name & call on it every week! His efforts are not unappreciated; however, so if you can give him a hand from time to time, let him know.

We've got **a lot of things coming up** the next few months. Club table at the 2 Rivers ARC Hamfest (let Carol KB3GMN know if you're interested), Hamvention (somehow 'Xenia Hamvention' just doesn't have the right ring to it), Breezeshooters (yes, there will be a club picnic again this year), Field Day... Pa QSO will be here before you know it... let's get together and go out and have some fun!

Join WASH or Renew your Membership Today! Membership Application on Page 19

Minutes, March 2nd Meeting

Harold Rosenberger K3HCR, Vice President / Secretary, **WASH**

Glen KE7FD, called the meeting to order at 19:00 hours. 19 members and 3 guests were in attendance.

A moment of silence was observed for recent Silent Keys & others deserving, followed by introductions.

Motion to waive reading of the minutes based on the minutes printed in the newsletter by Frank N3FB, second by Carol KB3GMN, and passed unanimously.

Committee reports:

Treasurer (N3RDV): Report read and accepted.

Secretary (KB3ERQ): No Report

VE (W3WN): 7 of 8 candidates passed at **WASHFest**: 1 upgrade to Extra, 1 new General, 5 new Techs, New licenses expected to appear in the ULS any day (editor's note: they were in the afternoon of the 2nd). Remainder of year to be scheduled, but will be again at WPXI, with thanks to Frank N3FB for making the arrangements.

Repeaters (N3FB): 650 voter is being serviced. Some issues with the digipeater causing some interference.

WASHNet (KC3ELA): "Going strong." Chuck will serve as the NCS for the foreseeable future.

N3SH.ORG (N3NWR): No report

Contests (K3VX): No report.

Public Service (AB3ED): Race for the Cure in Schenley Park on May 14th, contact Bob NU3Q. Mike WA3PYU will need help for the St. Patrick's Day Parade on March 11th. Pittsburgh Marathon is on May 7th, Jeff N3NHS will be looking for help soon. There will be an air show at Pittsburgh International Airport on May 13th & 14th.

Ways & Means (KB3GMN): Membership Contributions will be accepted tonight at the end of the meeting.

Newsletter (W3WN): Out.

Membership Recognition: Thanks to Chuck KC3ELA for staying the night at **WASHFest** so that we could have vendor setup on Saturday and overnight.

President (KE7FD): Presented a VOM to Jennifer KC3IHM as a welcome to a brand new ham.

WASHFest 2017 (KB3GMN):

- Thanks to all from the bottom of her heart for all their efforts. She received a lot of compliments from vendors and attendees
- Motion by Patty KC4WTT, second by Frank N3FB, to keep **WASHFest** at South Park for 2018 and the future. Passed unanimously
- 2018 has already been reserved and paid for
- Motion from Bill W3WH, second by Eric K3SGT, to reimburse Carol for the 2018 hall deposit. Passed unanimously
- Glen went over some tips and suggestions he received from vendors and attendees
- We made money! Mark does not have all the receipts in yet, so the specifics will be discussed next meeting
- Attendance was "350-ish", essentially the same as last year
- All tables sold out, again
- Kitchen made money, roughly \$6 off from last year.
- Glen congratulated Carol & Richie for the main prize selection (applause).
- Motion from Carol KB3GMN, second by Jim WB4GCS, to reimburse Rick KB3IAC \$153.07 for the directional signs. Passed unanimously.

Old Business: None

New Business: None

Good of the Order: Rick KB3IAC was contacted by the Ranger at Heritage Ridge to see if we could participate in a mock disaster drill on April 28th & 29th. They will be looking for 6 — 8 ops. Jim WB4GCS had a short discussion on the EME station to see if there was interest in setting it up at some point this year.

Motion to Adjourn by Carol KB3GMN, second by Jim WB4GCS and carried unanimously.

Meeting adjourned at 20:03.



WASH Spotlight: Cold Solder

Late breaking news that a new method of cold solder has been developed in China.

It actually uses a small, powerful "orange" laser built into the tip of what appears to be a standard soldering iron, to instantly melt solder to flow over the electronics quickly and efficiently.

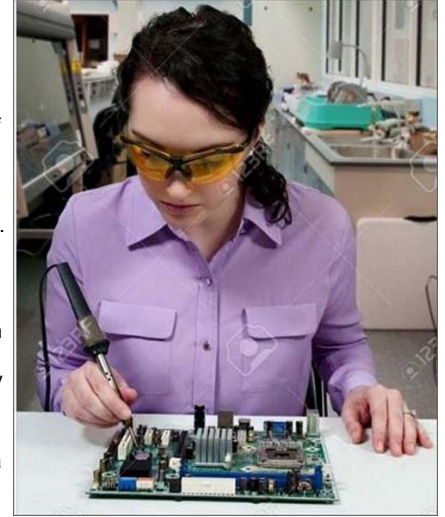
As you can see from the attached photo, the engineer demonstrating the technique is grasping the "soldering iron" with no ill effects, although as a precaution, she is wearing safety glasses to protect her eyes from the strong orange laser.

Rumor has it that there are still a few bugs to work out. For one thing, it is believed to require 1.21 Gigawatts of power to

function. While there is rampant speculation, at deadline it is still unknown if a flux capacitor is required in the power supply as well.

The device was expected to be demonstrated for the public on April 1st.

Photo courtesy of Rudy Rodolfo IW2BSF



Every month we're going to feature a **WASH** club member, something about them, something they're involved in or a club-related activity that we're involved in, in the **WASH Spotlight**. Submissions for the Spotlight should be sent to Ron W3WN at newsletter@n3sh.org

Monthly WASH Breakfast

Please join us for the next **WASH** Breakfast! We usually get together on the LAST Saturday of every month for a chance to informally sit down, shoot the breeze, compare notes, drink lots of coffee, and just have a good time!



Join us this month at **Suzy B's**, Route 910 at the intersection of Route 519 at US 19, 1 mile North of Downtown Canonsburg. Start time is about 8 AM until ????. Monitor 146.955 & 443.650 for talk-in or any last minute changes. All are welcome, **WASH** members or not, amateurs or not!

Wireless Association of South Hills Membership

| | | | | | |
|--------|--------|--------|----------|-------------|--------------------|
| AA3GM | KB3IVX | N3SBF | WASH FL | WASH TN | Silent Keys |
| AB3ED | KB3JHR | N3UE | KA3UPY/M | K3OL | |
| AB3NM | KB3ORO | W3WH | W4ZE | KE3XB | AB3KA |
| AC3AJ | KC3DOF | W3WN | WASH NE | N3YPB | K3EED |
| AE3DL | KC3ELA | W8LEV | N0PEU | WASH TX | K3LIE |
| K3HCR | KC3IRH | WA3PYU | WASH OR | NB3C | KA3NMG |
| K3SGT | KE7FD | WA3VSS | N0VLR | K3LGM | KB3ENX |
| K3VX | N1NCZ | | N0WVP | KB3JX | KB3FNM |
| KA3TWI | N3FB | | KB3NVL | Jane Wagner | KB3FQT |
| KA3VXM | N3IDH | | KB3NVM | WASH VI | KB3JHQ |
| KB3DCO | N3JFQ | | WASH OH | NP2JF | N3CZZ |
| KB3GMN | N3RDV | | N8DPW | | N3FZ |
| KB3GMU | N3RHT | | | | N3HKQ |
| KB3IAC | N3RIY | | | | N3KEH |

If your call should be listed here & isn't, please contact Mark N3RDV

Through April 1st, 2017
List compiled by
Mark Stabryla N3RDV, Vice President/Treasurer

AB3KA
K3EED
K3LIE
KA3NMG
KB3ENX
KB3FNM
KB3FQT
KB3JHQ
N3CZZ
N3FZ
N3HKQ
N3KEH
N3OBD
N3RNX
N3SKR
N3SRC
N3ZEL
N3XFE
W3ZLK
WA3JPP

2017 WASH Upcoming Events Calendar

Club Meetings & Other Significant Events — Subject to Change

| | | |
|--|-------------------------------|---|
| April 6 th | WASH Meeting | St. Clair Hospital Outpatient Center, 2000 Oxford Drive, Bethel Park |
| April 20 th | WASH VE Exams | WPXI Community Room, 4145 Evergreen Road, Pittsburgh PA |
| April 23 rd | Two Rivers ARC Hamfest | The Spectrum, Boston PA |
| May 4 th | WASH Meeting | St. Clair Hospital Outpatient Center, 2000 Oxford Drive, Bethel Park |
| May 19 th — 21 st | HAMVENTION [®] | Greene County Fairgrounds, Xenia OH |
| May 27 th — 28 th | CQ WPX Contest CW | http://www.cqwpix.org |
| June 1 st | WASH Meeting | St. Clair Hospital Outpatient Center, 2000 Oxford Drive, Bethel Park |
| June 4 th | Breezeshooter's Hamfest | Big Butler Fair Grounds, Prospect PA |
| June 10 th — 12 th | ARRL June VHF Contest | http://www.arrl.org |
| June 17 th | Cumberland Valley ARC Hamfest | http://www.w3ach.org |
| June 18 th | ARRL Kid's Day | http://www.arrl.org |
| June 24 th — 25 th | ARRL Field Day | http://www.arrl.org |
| July 6 th | WASH Meeting | St. Clair Hospital Outpatient Center, 2000 Oxford Drive, Bethel Park |
| July 8 th — 9 th | IARU HF World Championship | http://www.iaru.org |
| July 20 th | WASH VE Exams | WPXI Community Room, 4145 Evergreen Road, Pittsburgh PA |
| August 3 rd | WASH Meeting | St. Clair Hospital Outpatient Center, 2000 Oxford Drive, Bethel Park |
| September 7 th | WASH Meeting | St. Clair Hospital Outpatient Center, 2000 Oxford Drive, Bethel Park |
| October 5 th | WASH Meeting | St. Clair Hospital Outpatient Center, 2000 Oxford Drive, Bethel Park |



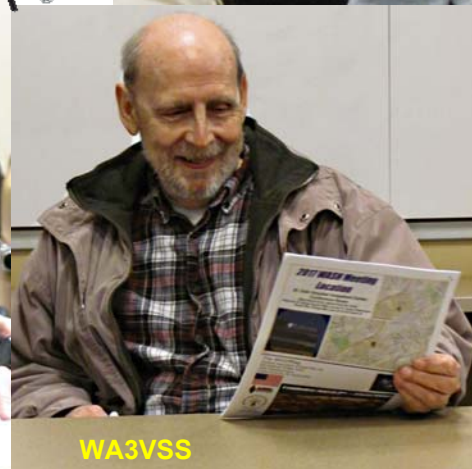
Please join me in extending a warm welcome to Bud N3TIR of Washington County, our WPA Assistant Section Emergency Coordinator. Bud has agreed to guide the ARES program in our section. Please address all your ARES reports, questions, and comments to him via his email address, bud@n3tir.com

—Joe Shupienis W3BC, ARRL WPA Section Manager



"Seen" at the March Meeting

Photos Courtesy of and © Copyright 2017 Ron Notarius W3WN



Ins and Outs — Little Things Matter!

James A. Sanford WB4GCS, PE Photos courtesy of and © Copyright 2017 Jim Sanford WB4GCS

As many of you are aware, Frank, N3FB, and I have been doing a lot of work on the voter for the 443.65 repeater. We've made a lot of measurements and done a lot of adjusting. In order to better understand our measurements and have something to compare them against, I decided to model some of the audio circuitry in the link radios. This led to a very interesting (rainy) Saturday in front of the computer.

Analog circuit modeling is typically done with a program called SPICE, which was created under government contract and is therefore in the public domain. Unfortunately, SPICE was predicated on text file inputs and outputs, called "cards". (I don't know that it ever used *real* punched cards like I did at the Naval Academy a couple of centuries ago. Over a good bottle of Scotch, I'll tell you a story about that, if you like) Just like antenna modeling software from the public domain, various entities have come up with "wrappers" which make input, output, and display easier or more convenient. I have two such packages.

The first is a commercial package I purchased several computers ago, and that's the problem. The license key is long gone, and it refuses to run on the current computer. I was pretty good with it ten years ago.

The second is a free product called LTSpice, from Linear Technologies. (<http://www.linear.com/designtools/software/#LTspice>)

I have had it a long time, and thought it a bit difficult to use, so really never did much with it. It comes with device models for Linear Technology devices, also models from some other manufacturers, and you can create or import your own. Since the expensive software refused to run, I gave LTSpice a try, starting with reading the documentation, like any good nuke. (Chrome Dome is infamous for asking, "WHAT does the manual say??")

Well, well, well – a couple of revelations here. First, the author, Michael Englehardt, claimed that good modeling software is developed by *modelers*, not *programmers* (agree!). Second, LTSpice is better than any commercial SPICE program you can buy (yeah, right!) Third, **LTSpice is the same software we use to design and model our integrated circuits for sale.** Say that again?? **LTSpice is the same software we use to design and model our integrated circuits for sale.** (WOW!) Linear sells devices useful up into the microwaves, so this statement is *significant*.

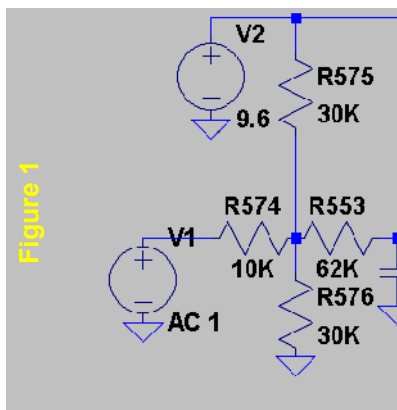
That got my attention! So, I started playing. It is safe to say that on a rainy Saturday, I went from totally incompetent to able to drive the software. Four hours later, I had to admit I was almost proficient. Then the learning began!

As an aside, the Linear web site has documentation, application notes, quick start guides and videos. Google "LTSpice" and you will get many more training aids on LTSpice.

First some fundamentals:

1. Modeling software uses *ideal* devices. The various device models make adjustments to the ideal to account for real component behavior. Some are quite sophisticated.
2. Modeling software starts with ideal voltage sources, familiar to hams.
3. An ideal voltage source has ZERO impedance – looking into it you will see a short circuit.
4. Modeling software starts with ideal current sources, not familiar to hams, but very useful, once you get to know them.
5. An ideal current source has INFINITE impedance – looking into it you will see an open.
6. An ideal operational amplifier has infinite input impedance and zero output impedance – an ideal voltage controlled voltage source.
7. An ideal operational amplifier has infinite frequency response.
8. Most opamps used in audio circuits are "internally compensated". This means they have a dominant pole (low pass response) so that at gains typically used, they are unconditionally stable. They are not useful for RF. You can get opamps where you determine the compensation based on your stability requirements and frequency response needs. Get it wrong, and you have an oscillator. (Ask me how I know this!)
9. Operational amplifiers are designed to operate from symmetrical positive and negative voltage "rails". They don't do well in single-ended (+12 and 0 volt) circuits. You can better use them in such circuits by biasing their inputs to half of the voltage (+6). This is easily achieved with a resistor network.

So, let the modeling (and learning!!!) begin.

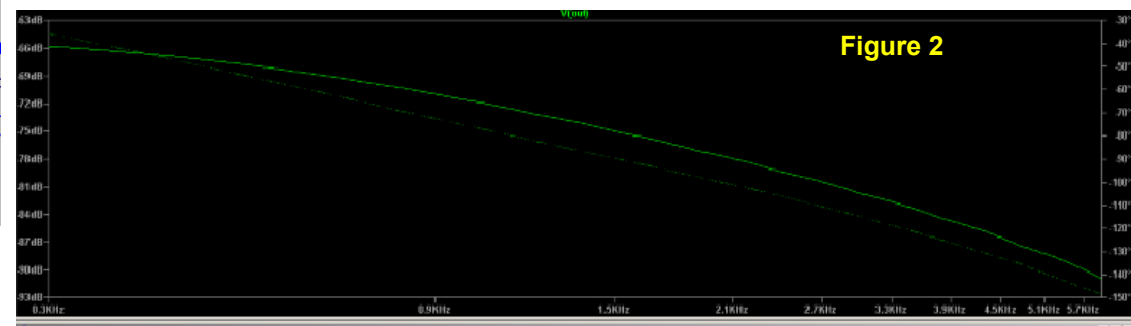


Here's the input to the first audio circuit in the N3FB repeater link receivers, a 3 KHz low pass filter: (Figure 1)

Voltage source V2 is the DC voltage source for the amplifiers. Resistors R575 and R576 bias the opamps to 4.8 volts, half the total DC voltage as discussed above. Variable voltage source V1 is the variable frequency audio source.

(I am deliberately being evasive about the subsequent circuitry to avoid copyright/patent issues with Motorola. The rest of the circuit doesn't matter for this discussion.)

Here's the frequency response of the modeled circuit: (Figure 2)



Doesn't look like a credible 3 kHz lowpass filter to me.

The real key that something is wrong is the fact that the circuit is a 60 db attenuator! Something is clearly wrong. Augmenting that assertion, when I probed the input to the opamp, I saw only slight attenuation, as would be expected. The *amplifier* is an *attenuator*! As the IT guys like to say, "garbage in, garbage out." Something smells here.

Looking at the schematic again, the two 30KΩ resistors are a voltage divider that bias the subsequent opamp inputs to half of the positive rail, so the op amp sees symmetrical positive and "negative" supply voltages. Look again. Given that the voltage source has zero impedance, the "voltage divider" is really 30KΩ going to 30KΩ in parallel with ZERO! The "bias" voltage will be near zero, and no wonder the response is not as expected.

So, let's adjust the model of the circuit. (Figure 3 next page)

The voltage divider of the two 30KΩ resistors establish the proper bias point. The capacitor between the variable audio source and the op-amp/filter input provides DC isolation while passing the audio frequencies we care about.

Continued on Page 8

Time Machines of Uncommon Construction

Fred Mullens N8YX

Or, "How life got behind me in an instant".

Many of us have a diverse set of hobbies and pursuits apart from amateur radio and electronics in general. For as long as I can remember I've been involved with making things. Metal and woodworking, welding...creating from raw materials. Before I got involved with radio communications on a whole-scale basis, most of my leisure time was spent crafting fine-scale models. The lion's share of these were railroad oriented. Rolling stock, structures...one needs tools to build this stuff.

One of the favorites of the 70s era was a Dremel "Moto Shop". This saw and accompanying accessories were also sold under the Montgomery Wards "Powr-Kraft" and Sears trademarks.

My mother got the Ward's version of the saw for me for my 14th Christmas. The (coincidental) birthday present was the accessory kit - flexible shaft, extra blades, grinding and sanding points, a buffing wheel. The kit was back-ordered from Wards' warehouse and literally took three months to finally arrive at my doorstep. Every day I'd run home from school and check the front porch to see if the postman had dropped it off. It was around this time of year that the long-anticipated package finally showed up. I could finally get to work.

A lot of models were made with the help of that Moto-Shop. When I began playing with electronics, the outfit got pressed into making the odd component, cutting and finishing PCBs...it even saw duty doing some motorcycle-repair activities.

Alas, "commercial duty" it isn't. Eventually, the coupler on the flexible shaft broke and the sanding arbor froze itself to the PTO, rendering the saw useless as anything but a saw. When its motor finally gave out - around the time I began to reconfigure my workshop in the late 2000s - the saw was thrown away. The remaining bits, points, collets and other useful items were kept and stored with my newer Moto Tools, of which a decent collection had been acquired.

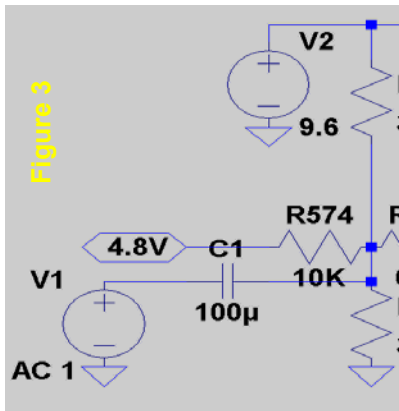
KD8DSG's father passed away in 2011 and I "inherited" his Powr-Kraft saw along with a lot of his other power tools. Same as mine but an earlier - possibly a little more robust - model, and in excellent shape. But no related accessories save the sanding arbor and disc were to be found in his old workshop, and Dremel has long since discontinued the kit.

eBay's your buddy, though. In searching for blades for the saw (also discontinued) I came across a Sears-branded accessory kit from an estate sale.

Walking around the house this morning, I spotted a package left on the front porch. As when I received the first kit, I opened it up and took careful inventory of the parts. And like the first, none of the various drums, discs, bits and points have ever been used.

40 years passed in the blink of an eye. Or so it would seem.

Maybe this is why we like our old radios, cars and similar items: They take us back.



This is much more like we would expect, and much more like we measured.

Work on the repeater will continue.

In the meantime, lessons learned:

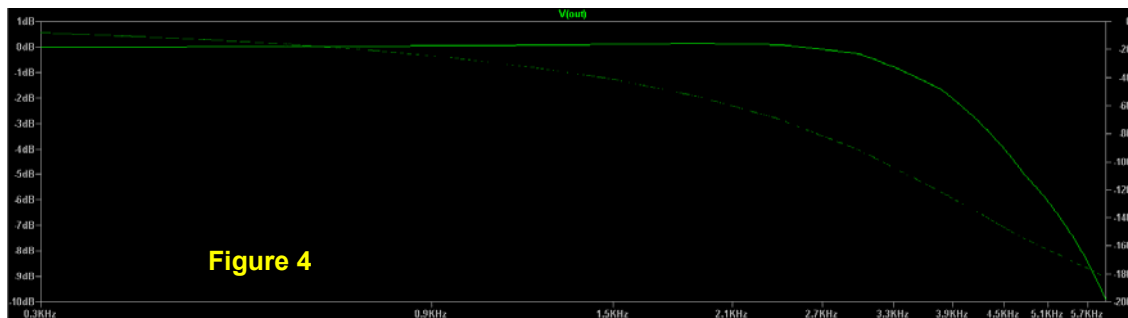
1. LTSpice is a powerful, free, circuit modeling program.
2. Modelers need to take into account properties of the ideal sources and components used in modeling. For example, in RF work, a signal generator is modeled as an ideal voltage source with a 50Ω resistor in series.
3. An op-amp output doesn't care about anything downstream other than extremes like dead shorts. Ideally, it is a voltage source with zero output impedance.
4. Anything downstream of an opamp output will have very little influence on the signal at the opamp output.
5. If the network downstream of an opamp is feeding a subsequent opamp, it needs to be modeled *in the input circuit of the second opamp* – it is very much a part of that second stage and will have an impact.

Products like LTSpice allow you to build virtual circuits and check out your ideas before ever turning on the soldering iron. LTSpice can be learned in an afternoon.

Happy modeling!!

Ins and Outs continued from Page 7

Here's the response:



What I've Been Doing...

Photos courtesy of and © Copyright 2017 Ed Wolf N3UE



Just a few pictures showing just what I've been up to these past bunch of years...

And radio had not been one of them...

Left: This is my 1995 Honda Shadow ACE1100. I've completely rebuilt this every couple of years until this, my final version.

Don't ride it though, because it stinks!

**Above: 1982 Honda GL1100, GL1200 Front & Rear Suspension, 1986 GL1200SE Engine, Highly Modified...
This ain't your grandpappy's Goldwing!**



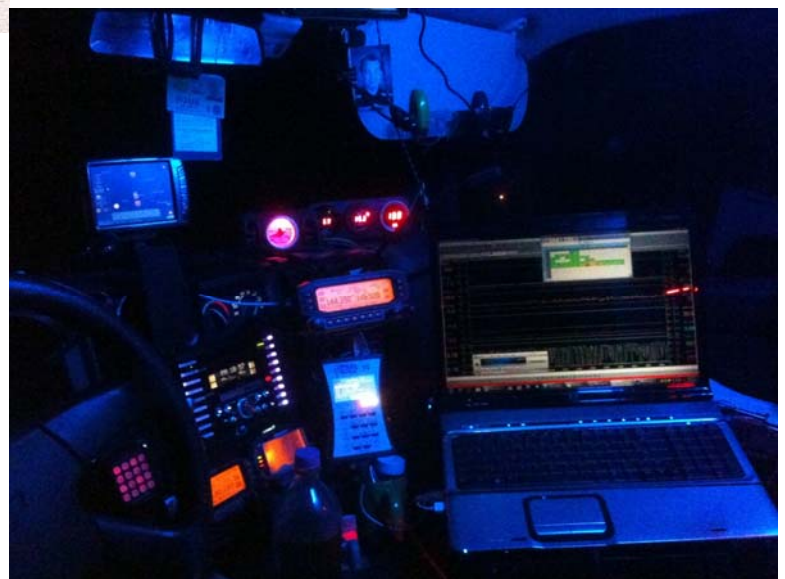
Above: Did this from my 2000 GL1500SEI after the doctors told me I wouldn't be riding again (heart problem)



**Left: 1972 Honda CB750K2
Built from the ground up,
mostly hand built**



**Above & Below: This was the "shack" in my van.
It does NOT show all of the stuff in there!**



Since I was last hanging around the club casting Nay votes, a few years back, I've been doing a few things.

After getting off workers comp in 2003 (had a truck transmission smooch my right arm, which is why I got into Amateur Radio in the first place, back in 1995) I bought a brandy new van and...

Was hauling freight in a 3/4 ton cargo van and visited 46 states and logged well over 900,000 miles. Got to see some really interesting places and meet some really interesting people. Also took about 4,000 pictures and got chased by some angry folks who didn't want their house on camera!

That all ended in 2011 when Jen wanted me home again! So now working locally at E R Shaw Precision Guns.

Yup, I make guns now... In my spare time, I have been doing nothing more than building, and modifying MotorCycles, having 7 of them now, with 5 on the road.

WPA Section News

Joe Shupienis W3BC, ARRL Western Pennsylvania Section Manager

Falls Creek, PA, March 20th, 2017 — What a weekend for amateur radio in WPA! Friday evening found me visiting the Cambria Radio Club in Johnstown. Before the meeting they held a VE session, with one upgrade and one new ham — Christopher Geiser KC3IVM, the son of John AB3OV and Leann Geiser KB3WUD.



Congratulations to the happy ham family!

Then it was off to Uniontown overnight so I could take part in the Digital Voice Radio seminar hosted by the Uniontown Amateur Radio Club at their W3PIE station/club house. The MC was WPA Public Information Coordinator (and a very active and knowledgeable ham) Cory Sickles WA3UVV. Josh KC8TAI came up from West Virginia to show off his home-built UHF DMR repeater. Josh gave a very interesting demo and description to a very interested group of 25 hams from three of the four WPA Districts.

Lots of questions were asked and answered, and it was clear that those in attendance were becoming enthusiastic about all the information they had absorbed. Josh's expertise with the

MMDVM, Arduino and Raspberry Pi multimode repeater controller and its possible use to bring FM, DMR, D-STAR, and P25 together in a single Yaesu DR-1x repeater without opening the repeater case, had everyone abuzz!

If you're sorry you missed it, there's good news. Cory is ready to present another, shorter presentation as one of the sessions of the WPA Section Convention being held during the Breezeshooters Hamfest in Butler on Sunday, June 4th. Come early and be prepared to enjoy a newly-expanded WPA Section Convention format!

Help Wanted

Applications are now being accepted for WPA Section Affiliated Club Coordinator. The ACC's duties include getting to know the affiliated club Officers and Members, providing ARRL support to these clubs and members, and providing resources to clubs to help them grow and prosper, while conducting service activities for their members and communities. The ACC is the point of contact for those clubs seeking to earn the coveted Special Service Club status.

This position requires travel to club meetings and activities when requested, and keeping a well-stocked inventory of ARRL literature, handouts and flyers to supply affiliated clubs for handing out to the public at club activities. If you are a "people person" and this job sounds like a great way to exercise your "gift of gab," you are encouraged to apply! Contact me at w3bc@arrl.org for more details.

Field Day 2017

Field Day is less than 100 days away (June 24-25), so its time to make the Big Decisions at your local club meetings... Now is the time to visit www.arrl.org/field-day and download all the items in the 2017 Field Day Kit.

Once you have settled on the place, go visit www.arrl.org/field-day-locator to put it on the map! It's amazing how many people use this tool to find a local Field Day site, and it's a great chance for you club to strut your stuff and attract some new members.

WPA Section Officials will be visiting sites, so please invite us now. I put on over 700 miles last year, and I look forward to visiting your clubs. Just a word of advice... I'm trying to lose weight so I plan to go easy on the meatball subs this year! HI HI!

The Final Final Four

Two down and ten to go. No, not basketball eliminations — Hamfests!

The third hamfest this year in WPA is coming up on Sunday, April 23.

It's the Two Rivers ARC Hamfest at The Spectrum in Boston Pa (near McKeesport). More details can be found on the events calendar at www.wpa-arrrl.org.

73 & Press On!



Operators Needed: Wings Over Pittsburgh

The Wings Over Pittsburgh Open House & Airshow will be held on May 13th & 14th 2017 at the USAF Reserve Base in Moon Twp., adjacent to Pittsburgh International Airport. Highlights will include the USAF Thunderbirds and an F-22 demonstration.

The show organizers have requested help from Amateur Radio operators to perform public service communications for the event. At the moment, we need at least 12 hams each day of the show.

If you are interested in volunteering or for more information, please contact Harry Bloomberg W3YG at hpb@pitt.edu

Special Note to ARES Members in Allegheny County: The air show conflicts with the Race for the Cure on Sunday, May 14th. That event is as important to us as the air show. Therefore, **we will not accept any volunteers from Allegheny County for the air show on Sunday until all slots for the Race for the Cure have been filled.**

Operators Needed: Race for the Cure

Amateur Radio Operators are needed to help provide communications for the 25th Annual Susan G. Komen Race for the Cure on Mother's Day, May 14th, 2017.

Operators are needed for fixed points along the course, and to shadow the race officials.

The race begins at 6:30 AM, and will take place at Flagstaff Hill in Schenley Park.

If you are interested in volunteering for this worth cause, please contact Bob Mente NU3Q at (412) 279-9016, or nu3q@nu3q.us



Saturday Morning with DX Engineering Tim Duffy K3LR

Tallmadge, OH, February 17th 2017 — I want to bring to your attention to a program we offer to local Ham Radio Clubs, "Saturday Morning with DX Engineering". Select Saturdays throughout the year we open our showroom from 9:00 AM to 11:00 AM to interested local clubs, limit 20—25 people.

I invite you and your fellow club members to browse, shop, and rag chew. After spending approximately 45 minutes in our showroom, you spend the next 45 minutes on a very brief tour, sit down for some coffee and donuts, and a short presentation from one of our staff. At the end of the presentation you will return to the showroom where you will have the opportunity to ask any additional questions you may have.

Interested clubs are also invited to visit me, Tim Duffy K3LR and my contest station, K3LR in West Middlesex, PA afterwards. It is approximately a one hour drive East from DX Engineering, with tours lasting 60—90 minutes including a question and answer opportunity. You will be responsible for your own transportation, and I encourage you to carpool from your club location to DX Engineering and then to K3LR.

Signing up is easy, just have a club officer go to our website, click on the Contact Us link, click on Club Opportunities, download and print the Presentation Request, fill it out and send it back to Teri K8MNJ, instructions and contact information is listed on the form. Teri K8MNJ will review your request and contact you to confirm the date. Approximately 7 days prior to your visit, please contact her with your final count.

Times are limited, however, we will do our best to accommodate as many clubs as possible.

Very 73, Tim Duffy K3LR, Chief Operating Officer, DX Engineering



TAPR Announces SDR Presentations at Hamvention TAPR

Tucson, AZ, March 31st 2017 — TAPR announces Software Defined Radio (SDR) Presentations at the Dayton Hamvention by Carl Laufer, an electronics, software & radio enthusiast from New Zealand. He operates the RTL-SDR.com blog, specializing in news, projects & products related to ultra low cost software defined radio & the RTL-SDR dongle.

The TAPR Digital Forum will include these presentations:

- Introduction to RTL-SDR: Ultra cheap software defined radio Digital Modes Now and in the Future Forum
- Introduction to low cost HF monitoring with RTL-SDR

The exact schedule has not been finalized. Check the TAPR web site for updates.

In addition, the AMSAT/TAPR Joint Banquet will include:

- The world of low cost software defined radio

The TAPR/AMSAT Joint Banquet will be held Friday Evening in Dayton. Dinner tickets MUST be purchased in advance at the AMSAT Store. No tickets will be sold at either the AMSAT or TAPR Booths.

TAPR will be located at Booths 5001—5003 in [Building 5](#).



FCC Issues Notice of Violation to Solar City Michael Kirkland NS6Q

Folsom, CA, March 16th 2017 — After an on-site visit and testing by an FCC Enforcement Agent of the ~S9 interference caused to my station by a Solar City solar array located 2 houses away, the FCC issued Solar City a Notice of Violation.

It appears that at least one of the primary interference generating components is a load balancing device called an "optimizer" which is attached to back of each solar panel. Testing by the FCC Agent showed that the interference does not stop until the optimizer is detached from the solar panel. Attempts by Solar City to add filters were unsuccessful and only resulted in a few dB of change.

The optimizer (as well as the rest of the system) is manufactured by Solar Edge. I was told by Solar City when I inquired about them installing a different type of system that this is the only kind of system that Solar City installs. Given this it's not hard to envision that many Solar City installations are causing this type of interference. Fortunately the FCC is concerned about this issue and is actively working to resolve it.

Got an interference issue? Do your homework and file an FCC complaint. It's what starts the process.



Club Log is Now a Logbook of the World Trusted Partner

American Radio Relay League

Newington, CT, April 3rd, 2017 — Club Log has become the first logging service to achieve Trusted Partner™ status for Logbook of the World® (LoTW). ARRL and Club Log have announced. Radio amateurs holding LoTW "callsign certificates" who have uploaded logs to Club Log now can readily cross-post them to the highly secure LoTW — world's largest repository for confirming Amateur Radio contacts.

The Trusted Partner program defines the requirements for an online service to store user credentials with acceptable security. All LoTW users, whether or not they work through Club Log as a Trusted Partner, are responsible for ensuring the security of their credentials. Individuals who rely on a Trusted Partner site for security have met the requirement to keep LoTW their credentials secure. Users who allow their callsign certificates to be compromised or who knowingly exploit compromised credentials may lose the privilege of using LoTW and participating in ARRL-sponsored award programs.

Club Log has implemented security at the level required by the Trusted Partner program, as verified by ARRL's Information Technology Department. Trusted Partners are re-verified periodically to remain in the program. [More information](#) on technical specifications and on current Trusted Partner program members is available on the ARRL website.

Other logging sites are invited to join the program by implementing the Trusted Partner standard.

Existing ClubLog users can find the tools to link to Logbook of the World at <https://secure.clublog.org/lotw/>. They are encouraged to first read the "Getting Started Guide" via the link on that page.

Help for Logbook of the World users can be found at <http://www.arrl.org/lotw-help>, or on the LoTW users's forum at <https://groups.yahoo.com/neo/groups/ARRL-LOTW/info>



New Bands!

FCC Issues Amateur Radio Service Rules for 630 and 2200 Meters

American Radio Relay League

Newington, CT, March 31st, 2017 — It's been a long time coming, but the Amateur Service will get two new bands in the near future. The FCC on March 28 adopted rules that will allow secondary Amateur Radio access to 472-479 kHz (630 meters) and to 135.7-137.8 kHz (2,200 meters), with minor conditions.

The FCC *Report and Order* ([R&O](#)) spells out the details. **It allocates 472-479 kHz to the Amateur Service on a secondary basis** and amends Part 97 to provide for Amateur Service use of that band **as well as of the previously allocated 135.7-137.8 kHz band**. The *R&O* also amends Part 80 rules to authorize radio buoy operations in the 1900-2000 kHz band under a ship station license. Just when the new Part 97 rules will go into effect is difficult to determine just yet; more on that below.

"It's a big win for the Amateur community and the ARRL," ARRL CEO Tom Gallagher NY2RF, said. "We are excited by the FCC's action to authorize Amateur Radio access for the first time on the MF and LF spectrum. As amateurs begin using these new allocations in the next few weeks, we encourage the entire Amateur Radio community, as secondary users, to be especially attentive to the rules."

It has not been an easy win, however. ARRL has been trying since the 1970s to convince the FCC to allow amateur access to parts of the spectrum below the Standard Broadcast Band. Through the Utilities Telecoms Council (UTC), electric power utilities have opposed Amateur Radio use of the MF and LF spectrum, raising unsubstantiated fears of interference to unlicensed Part 15 power line carrier (PLC) systems used to manage the power grid. The FCC said the Amateur Radio service rules it has adopted for 630 meters and 2200 meters allow for co-existence with PLC systems that use the two bands.

Here are the highlights:

- Amateurs operating on 472-479 kHz will be permitted a maximum equivalent isotropically radiated power (EIRP) of 5 W, except in parts of Alaska within 800 kilometers (approximately 496 miles) of Russia, where the maximum would be 1 W EIRP. [EIRP is the product of the power supplied to the antenna and the antenna gain in a given direction, relative to an isotropic antenna (absolute or isotropic gain). EIRP is equal to ERP multiplied by 1.64.]
- Amateurs operating in the 135.7-137.8 kHz band will be permitted to run up to 1 W EIRP.
- The FCC is requiring a 1-kilometer separation distance between radio amateurs using the two new bands and electric power transmission lines with PLC systems on those bands. Amateur Radio operators will have to notify the UTC of station location prior to commencing operations. The FCC Wireless Telecommunications Bureau will provide details on the notification process later, but ARRL is urging radio amateurs interested in operating on either band to register at the earliest opportunity, to avoid having to protect any "post-notification" PLCs.
- The FCC placed a 60-meter (approximately 197 feet) above-ground-level (AGL) height limit on transmitting antennas used on 630 meters and 2200 meters.
- The bands would be available to General class and higher licensees, and permissible modes would include CW, RTTY, data, phone, and image. Automatically controlled stations would be permitted to operate in the bands.

In an unrelated action, the FCC allocated 1900-2000 kHz to the maritime mobile service (MMS) on a primary basis for non-Federal use in ITU Regions 2 and 3, and limited the use of this allocation to radio buoys on the open sea and the Great Lakes.

"We are persuaded by ARRL's comments to adopt final rules that are better tailored to the places where the commercial fishing fleet can make reasonable and productive use of radio buoys," the FCC said.

Amateur Radio was upgraded from secondary to primary in the 1900-2000 kHz segment in 2015. The FCC said it believes Amateur Radio and radio buoys "can continue to share this frequency band as they have done for many years." It declined to make additional spectrum available for radio buoy use.

Effective Date

The fact that the new rules contain a new information-collection requirement — notification of operation to the UTC — makes it difficult to guess at an effective date. The FCC *R&O* says the Office of Management and Budget (under the Paperwork Reduction Act) must first approve the information-collection requirements (in §97.303[g][2]). Once that happens, the revised Part 97 rules sections will become effective after the FCC publishes a notice in *The Federal Register* "announcing such approval and the relevant effective date."

ARRL Reiterates It's Case for New Band at 5 MHz American Radio Relay League

Newington, CT, March 21st, 2017 — In comments filed on March 20 with the FCC on its own January *Petition for Rule Making* ([RM-11785](#)), ARRL reiterated its case for a contiguous secondary 15-kHz wide 60-meter band of 5351.5 to 5366.5 kHz in addition to the four existing discrete 60-meter channels that fall outside the requested band, with a permitted power level of 100 W EIRP and retention of current operating rules.

More than 5 dozen comments, all supporting the proposed allocation, were filed on the League's petition, although some suggested more spectrum or higher power, or a combination. ARRL said, however, that it does not at this time favor any changes in its initial request for a new band. The League proposal would implement a portion of the *Final Acts* of World Radiocommunication Conference 2015 (WRC-15) that provided for a secondary international amateur allocation of 5351.5 to 5366.5 kHz at a maximum of 15 W EIRP.

"Each component of this proposal is intended to maximize spectral efficiency by permitting amateurs to operate throughout a band as conditions and availability warrant; to give primary service operations certainty as to where radio Amateurs will be located within the broader fixed and mobile service band between 5.250-5.450 MHz; and it protects those primary users with the same successful interference avoidance techniques and protocols that have been used for the past 15 years domestically, with which radio amateurs have the technical training and experience to comply," ARRL asserted in its comments.

The League said the WRC-15 power limit of 15 W EIRP "would render the band unsuitable for emergency communication, especially between the US mainland and the Caribbean Basin during summer storms and hurricane season, when atmospheric noise can be severe.

ARRL said there were good reasons for hewing to the proposal it initially crafted and filed with the FCC, most relating to the fact that the spectrum is shared with federal government users and radio amateurs must avoid interfering with them. The ARRL also pointed out that there is no "European Model" for 5 MHz, noting that the vast majority of European countries have held to the 15 kilohertz agreed to at WRC-15, and some even to the 15 W EIPR power limit. The National Telecommunications and Information Administration ([NTIA](#)), which regulates government spectrum, would have to sign off on any proposal, and, ARRL noted, it has twice expressed concern about a contiguous allocation at 5 MHz and did not favor the plan agreed to at WRC-15.

"While ARRL understands and agrees that there is a long-term, justifiable need for an allocation at 5 MHz that is larger than the 15 kHz made available at WRC-15, and there is a very practical need for power in excess of the 100 W PEP requested in ARRL's *Petition*, there are practical considerations inherent in the ARRL *Petition* that stem from an urgent and ongoing need to share the Amateur allocation compatibly with other, primary users," ARRL said. "The Amateur Service must, of necessity, avoid interference to the primary users of this band (which it has, to date) in order to be permitted to operate there."



US Amateur Radio Maker License Proposal

Southern California Six & Ten Meter Club

k6dxa@outlook.com

We all enjoy our outstanding association of Amateur Radio and know that it has had a profound effect on our chosen hobby. Also, it has given us a wonderful camaraderie with fellow hams in our Southern California community and around the world. Sharing this valuable gift of Amateur Radio with U.S. middle school students during their formative years will have a similar effect on them, their lives and their education, both professionally and personally.

We know that each of our fellow Amateur Radio Operators are selfless individuals who have given generously of their time and resources for the betterment and promotion of Amateur Radio and we send to you our heartfelt Thanks.

We would also like to prepare for the future now and get more U.S. citizens involved in Amateur Radio.

With the proliferation of more advanced cell phones that do more and more exciting things and other diversions, it is imperative that we get more young people involved in Amateur Radio and "bring back the excitement" of HAM RADIO on all amateur bands. There is a serious problem with the High Average Age of Ham Radio Operators that needs to be addressed.

In this regard, we propose (Southern California 6 & 10 Meter Club) a new U.S. Amateur Radio Maker License specifically targeted to U.S. middle school students. Once young people get excited about Amateur Radio and enjoy communicating with their friends and experienced ham radio operators, many will become quite involved in Amateur Radio, will upgrade and it will become a life-long rewarding hobby for them. But, we must make students aware of Amateur Radio during their formative years, when they are young.

Looking into the future, for the rest of the century and beyond, we believe that every middle school student in the United States needs to understand the fundamental of radio and electronics, and understand the benefits of Amateur Radio and "what it is all about".

Our goal with the proposed Amateur Radio Maker License is to get many U.S. middle school students involved in amateur radio and to learn more about the exciting field of radio electronics. If they get to experience the "Magic of Amateur Radio", many of them will upgrade and continue to enjoy Amateur Radio throughout their adult lives. It also important that we give these entry-level operators "real privileges" and the opportunity to grow and learn.

Also, we need more of our Amateur Radio bands to be utilized so that we don't lose these bands to commercial interests. Many wireless and bandwidth providers are "chomping at the bit" to take valuable amateur radio frequencies where there is little or no radio traffic.

It is imperative for the future of Amateur Radio that we get many young people involved in Amateur Radio, gain substantial, increased Amateur Radio licensees and create more traffic on all amateur radio bands. The long-term future of Amateur Radio is at stake and it is important for us to act now to secure the future of Amateur Radio for generations of Amateur Radio operators to come throughout this century. We ask that you give our Proposal serious consideration.

U.S. Amateur Radio Maker License Proposal (From Southern California 6 & 10 Meter Club)

Southern California Six and Ten Meter Radio Club is proposing a new, entry-level U.S. Amateur Radio License and to expand existing Technician License privileges.

- 1) Proposed Maker License is designed to promote Amateur Radio for middle school students (6th, 7th and 8th grades) and we propose that the program be administered by middle school science instructors and/or VEC examiners, or a combination of both.
- 2) Proposed Maker License Privileges:
 - 21.3 MHz - 21.45 MHz - (15 meters) - 200 watts RF maximum output power - all modes
 - 24.89 MHz - 24.99 MHz - (12 meters) - 200 watts RF maximum output power - all modes
 - 28.0 MHz - 29.7 MHz - (10 meters) - 200 watts RF maximum output power - all modes
 - 50.0 MHz - 54.0 MHz - (6 meters) - 200 watts RF maximum output power - all modes
- 3) To earn these privileges and the proposed U.S. Amateur Radio Maker License, the student or other applicant would complete 2 projects – one project would be a simple amateur radio transceiver kit and the other would be a workbook/amateur radio operating manual.
- 4) The transceiver kit would be crystal controlled and the transceiver will have an output power not to exceed five watts, either a double-sideband or CW transceiver.
- 5) The applicant will build the radio kit themselves, with instruction or assistance from middle school program teacher and/or ham radio operators assisting the program. The radio kit will include schematics, diagrams and pictures to assist in kit construction. If mistakes are made on kit assembly, applicant will correct errors with assistance until the simple transceiver is operational.
- 6) Proposed Maker License Workbook will consist of basic electronic instructions about resistors, conductors, capacitors, batteries and all forms of semi-conductors, including explanations concerning how they work. Workbook will also discuss current flow, power transfer characteristics of devices, magnetism/inductance, electrostatic fields, capacitors and tuned circuits etc.
- 7) Proposed Maker License workbook will illustrate, as an example how current flow through a resistor changes current flow into heat. There would be pictures and diagrams of what resistors and other electronic components look like, such as the zigzag wiring inside a toaster, for example. Applicants would be asked to draw diagrams of a resistor and other electronic components in the workbook. The manual would help applicants to be able to draw schematics and understand the characteristics of various electronic components.
- 8) Proposed Maker License operating manual section would illustrate examples of 15 meter dipoles, transmission lines, transceiver connections, 10 meter and 6 meter vertical Omni antennas and their connections and transmission lines. It would also explain how to read the dial on a transceiver and illustrate what Amateur band sections the proposed Maker Licensee would be allowed to operate on.

Continued on page 14

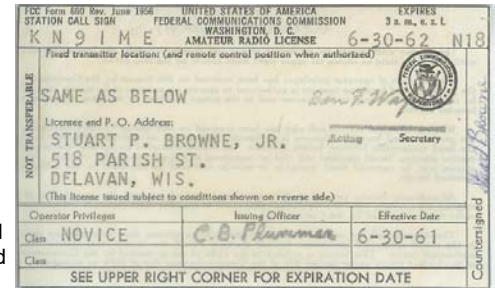
ARRL Reiterates It's Case for New Band at 5 MHz

Continued from Page 12

Citing its decades-long effort to obtain operating privileges in the vicinity of 5 MHz, ARRL said there's "not really much room for debate about the size of the band and the power limit domestically at the present time, given the allocation status of the band (domestically and internationally) and the necessary interference protection requirements for primary users."

"It is hoped that as regular Amateur operation in this contiguous band develops, with the operating parameters recommended in ARRL's *Petition*," the ARRL comments continued, "such operation will continue to demonstrate compatible sharing with federal and other users and the operating parameters and the band can be re-examined and adjusted equitably at a later time."

ARRL said the most important thing is to have the FCC grant an allocation before offering initiatives to alter the plan it proposed in January. It urged the FCC to adopt the rule changes it's proposed "at the earliest possible time, if at all possible in advance of the 2017 hurricane season."



A Few More WASHFest 2017 Pictures

Courtesy of and © Copyright 2017 Radio Free Bob Bastone WC3O



Maker License Proposal

Continued from Page 13

- 9) The Proposed Maker License operating manual section would also stress courtesy and the importance of sharing the radio spectrum. Also, it would include copies of U.S. Amateur band plans, U.S. Amateur License class radio privileges and stress adherence to Amateur Radio rules and regulations.
- 10) We propose that the applicant would be required to fully complete the open workbook & question pages and correct the several pages of workbook completion test question answers with classroom assistance until the workbook question answers were 100% correct. Successfully completing the workbook and simple radio kit would make the applicant eligible for the proposed U.S. Radio Amateur Maker License.
- 11) Southern California Six and Ten Meter Radio Club proposes that the middle school instructor would sign and certify applicant completion of the program, along with two certified VEs or if other public program leader, along with three certified VEs and then certification documentation would be sent to the FCC for proposed U.S. Amateur Radio Maker License. We propose that this entry-level license be issued for a period of 10 years and be non-renewable as an incentive to upgrade to more advanced Amateur Radio licenses.
- 12) Southern California Six and Ten Meter Radio Club also proposes that current U.S. Technician Amateur Radio Licenses be expanded to Include All amateur radio license privileges from 21.3 MHz and above – with full legal-limit power – including all modes.
- 13) The proposed U.S. Amateur Radio Maker License simple transceiver kit would be determined by VECs, in coordination with middle school teachers and program leaders.
- 14) Simple radio kit proposed minimum requirements – to consist of a QRP Pixie CW DIY kit with audio side tone or a Forty-9er 3W Ham Radio QRP Kit CW Radio Transmitter etc. – kit specifications would be determined by area VECs.
- 15) Proposed U.S. Amateur Radio Maker License workbook content, class content and transceiver kit specifications would be determined by VECs, in coordination with middle school teachers and program leaders. It is suggested that some communities or VECs may recommend that their required kits be inexpensive double sideband kits or they may wish other workbook modifications as desired by local programs etc.

The Southern California Six & Ten Meter Club would like to hear from all Interested Hams.

As a foot Note; Please understand along with the possibilities of a New License Class "Makers License" there would be changes to the Tech License as well with added band privileges that would fall under the ARRL and the FCC

At this point we are looking for Input from the Amateur Radio Community.

Club & Club Member Contact Info Below

K6DXA Southern California Six & Ten meter Club - k6dxa@Outlook.com
 Will Anderson - AA6DD - President - (951) 776-0315 - will.aa6dd@gmail.com
 Steven Rapata - AC6DX - Vice President - ac6dx@arrl.net
 Fred Plimley - K6GWY - Marketing Officer - (213) 254-5192 - fredplimley@gmail.com
 Kim George - K6YYL - Secretary - ki6ywp@gmail.com
 Tom Muller - WA6USA - Membership Coordinator - (951) 500 -9569 - wa6usa@gmail.com

Midway & Kure Islands Now Deleted DXCC Entities

American Radio Relay League

Newington, CT, March 31st — Midway and Kure Islands have been placed on the list of DXCC deleted entities, effective August 26th, 2016.

This came about as an unintended consequence of action last summer by then-President Barack Obama that expanded the [Papahānaumokuākea Marine National Monument](#) to include the northwestern Hawaiian Islands west of Ni'ihau Island, making it the largest contiguous protected conservation area under the US flag.

Midway (KH4) had qualified for DXCC status by virtue of its being governed by a separate administration. Because it is now under the administration of Papahānaumokuākea Marine National Monument, however, it becomes a deleted entity. Approximately 50 people live on Midway, including US Fish and Wildlife Service staffers and contractors. The Battle of Midway, a turning point in the Allied World War II Pacific Campaign, took place in June 1942.



Now uninhabited, Kure Island (KH7K), a part of Hawaii, is separated from the rest of the state by Midway; because of that, it qualified for DXCC status under Section II, 2 (b) (iii) of the DXCC Rules — separation from its "parent" Hawaii. Midway Island's change in DXCC status in turn made Kure Island no longer eligible for DXCC status, since Kure no longer is separated from the rest of Hawaii by intervening land or islands that are part of another DXCC entity.



Kure Island once was home to a US Coast Guard LORAN station, remnants of which are still evident. It has been a state wildlife sanctuary since 1981.

The relevant parts of Section II of the DXCC Rules follow:

A Geographic Separation Entity may result when a single Political Entity is physically separated into two or more parts. The part of such a Political Entity that contains the capital city is considered the Parent for tests under these criteria. One or more of the remaining parts resulting from the separation may then qualify for separate status as a DXCC Entity if they satisfy paragraph a) or b) of the Geographic Separation Criteria, as follows.

b) Island Areas (Separation by Water):

A new entity results in the case of an island under any of the following conditions:

iii) The island is separated from its Parent by intervening land or islands that are part of another DXCC entity, such that a line drawn along a great circle in any direction, from any part of the island, does not touch the Parent before touching the intervening DXCC entity. There is no minimum separation distance for the first island entity created under this rule. Additional island entities may be created under this rule, provided that they are similarly separated from the Parent by a different DXCC entity and separated from any other islands associated with the Parent by at least 800 km.

Neither Midway nor Kure was able to be activated without prior permission and only for a planned DXpedition. Only contacts made on August 25th, 2016, or earlier will count for these two entities.

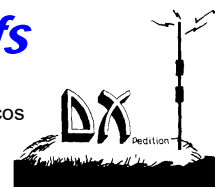
UN Headquarters Amateur Radio club station [4U1UN](#) representatives are still in talks with the UN Department of Public Information with an eye toward permanently reactivating the station.

The station was last on the air as [4U7ØUN](#) to commemorate the UN's 70th anniversary in the fall of 2015.

4U1UN was dismantled in 2010 due to [extensive renovation](#) of the Secretariat Building. Security concerns and logistics have since stood in the way of it's returning to the air. Option under consideration include controlling the station remotely, putting the station on the ground floor, or moving it to another sovereign UN building.

— courtesy of The Daily DX and the American Radio Relay League

DX News Briefs



A team of operators will be activating both Christmas Island (OC-002) as [VK9XI](#), 2 — 10 October; and Cocos Keeling Island (OC-003) as [VK9CI](#), 10—17 October. They will be QRV on 160m-10m with a focus on the low bands (possible 6m activity also) SSB, CW, & RTTY. QSL via Charles MØOXO, OQRS — DX World

Following this, GM4YXI & GM3WOJ plan to return to Cocos-Keeling Island between 23 October to 6 November 2017, tentatively as [VK9CZ](#) (callsign still to be confirmed). They previously activated VK9CZ in March/April 2013 and this will give you another opportunity to work VK9C if you miss VK9CI. They will also be QRV in the CQ WW SSB contest as an M/2 entry. More information and a website to follow in the next few weeks — DX World

3D2AG is now QRV as [3D2AG/P](#) from Rotuma, through 22-25 April, pending shipping schedules. He is on 160—6 including 60 Meters. He is running barefoot into simple antennas & operating via solar power. QSL via 3D2AG — 3D2AG, OPDX

WW6RG is now QRV from Wake Island, IOTA OC-053 as [WW6RG/KH9](#). Length of stay is not known. QSL via WW6RG — WW6RG, DX Coffee

DJ7CF is currently QRV as [6Y5/DJ7CF](#) until 28 April. QRV on HF bands, SSB/CW/PSK31. QSL via DJ7CF — DJ7CF, DX World

SM7RYR will be QRV from Greenland, IOTA NA-018, 6 to 10 April 2017 as [OX/SM7RYR](#) on HF. QSL only via LOTW. SM7RYR, DX Coffee

5TØJL will be QRV as [5T3MM](#) 12—18 April, including the CQ Manchester Mineira DX Contest. QSL via PY4KL — OPDX

VA7YM will be QRV from Efate Island, IOTA OC-035, 6 to 17 April 2017 as [YJØYM](#), HF bands & 6 meters, SSB, RTTY and PSK 31. QSL via EA5GL — VA7YM, DX Coffee

HB9JAB will be QRV holiday-style as [V51/HB9JAB](#) between 18 April 18 to 8 May 8, 2017. QSL via eQSL, LoTW. HB9JAB, DX World, OPDX

DF7DQ will be QRV as [3W9DQ](#) 1—10 May, on "various" HF bands. QSL via DF7DQ — DF2DQ, OPDX

DF2WO will be QRV as [D44TWO](#) from AF-005 3 May—8 June, holiday style, 40—10 Meters, CW SSB & Digital but primarily Digital and slow CW. QSL via MØOXO — DF2WO, OPDX

G4IRN plans to be QRV as [8Q7RN](#) 'sometime' in June, holiday style. QSL via G4IRN — G4IRN, OPDX

A team of operators plan to be QRV as [TE8EX](#) from Chira Island NA-116 8—12 June, 80 —6, CW &SSB. QSL via T12CDA — OPDX

VK5YL will be QRV as [E51XYL](#) from OC-013 (South Cook Islands) 10—17 June, primarily on 20 meters. QSL via VK5YL — VK5YL, OPDX

QSL Routes

| | |
|--------------------------|-----------------------------|
| 3V8SS via LX1NO — NG3K | H4ØGC via ZL1GC — LU2DKN |
| 3W9DQ via DF7DQ — DF7DQ | HR5/F2JD via F6AJA — JA1HGY |
| 3Z6V via SP6DVP — NG3K | IF9A via IT9WDC — NG3K |
| 5JØNA via LW9EOC — NG3K | IO9R via ON3AR — NG3K |
| 5T3MM via PY4KL — 5TØJL | LY27A via LY5A — NG3K |
| 8P1W via KU9C — NG3K | MX1SWL via G6XOU — ISWL |
| 8Q7RN via G4IRN — G4IRN | PJ7PL via WA1ZAM — NG3K |
| 9G5X via MØOXO — JA1HGY | RK9ØDR via R9XC — NG3K |
| 9X2AW via MØOXO — JA1HGY | S21KW via YL2GN — NG3K |
| A35W via JJ2VLY — JA1HGY | T31T via 3Z9DX — LU2DKN |
| A73A via MØOXO — NG3K | T15M via T12KAC — T15M |
| CR6K via CT1ILT — CT1ILT | TL8TT via I2YSB — JA1HGY |
| E2A via E21EIC — NG3K | TU5MH via DJ5BWD — JA1HGY |
| E51XYL via VK5YL — VK5YL | V31VP via WBØTEV — NG3K |
| E7DX via E77E — E77DX | V47JA via W5JON — W5JON |
| EA9KB via EA7FTR — NG3K | XO1X via KC1CWF — XO1X |
| EF9R via EA5KB — NG3K | ZC4A via MØURX — JA1HGY |
| GX4BJC via G6XOU — ISWL | ZX5J via NZ4DX — NG3K |

Thanks to the NJDXA DX News Reflector, the DX-QSL Reflector, 425 DX News, OPDX News, DX Coffee, DX World.Net, ICPO Bulletin, & ARRL DX Bulletin for our DX News information. Thanks also to the ARRL DXCC Desk, & Bernie McClenny W3UR / The Daily DX for confirmations & additional information.



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Antenna Zoning or PRB-1 Issues?

Contact: **Michael S. Lazaroff K3AIR, Attorney at Law**

The Cingolani Building

300 North McKean Street, Butler PA 16001

Phone: 724-283-0653

The **WASHRag** Masthead is courtesy of Jeff Murray K1NSS creator of DASHToons & Dash the Dog Faced Ham!!

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CQ Maps Has Closed

CQ Maps and CQMaps.COM has permanently closed. Alas, all good things must come to an end. I have decided to pursue different endeavors & wish to focus all of my effort in that direction.

It has been an extremely fun time since opening March of 2015! We have printed more than 2000 orders & shipped to nearly 20 different DX Entities.

I sincerely appreciate all of your business and the friends that I have gained along the way.

— 73, James Viars N4EGA

William Plum Is Closing Shop

Flemington, NJ, March 27th, 2017 — I'm thinking it's about time to close up this DX biz. 2016 was the worst year ever; 2017 is continuing the trend.

Offering some MAJOR price breaks and bulk discounts. Will add more stamp offers next month, especially on those countries that have a global Forever stamp.

I will be keeping the US discount postage going. Nearly 35 years doing this. "The time has come..." the Walrus said.

This will take AT LEAST until the end of the year — IF not longer to clear out all the envelopes, albums, and stamps. I will be offering more stamp specials, next month's DX emailing.

— 73, Bill

William Plum, 12 Glenn Road, Flemington NJ 08822

(908) 788-1020 or plumdx@msn.com

(From the April William Plum Newsletter; Thanks to Bill Meacham KP4SX for the tip and for a copy of the entire newsletter)

FCC FCC News

Courtesy of the American Radio Relay League

Newington, CT, March 8th, 2017 — New FCC Chairman Ajit Pai is declaring the initial phase of his pilot program to increase the transparency of its rule making process a success. Pai announced the program in early February. It will, for the first time, make public the full text of documents circulated to the rest of the Commission for a vote at FCC open meetings. Under prior practice, such documents would have been kept under wraps until after the Commission voted on them.

"I'm pleased to report that the initial stage of the pilot project was a success!" Pai said in a March 2nd blog post. "We received overwhelmingly positive feedback from the public."

As a result, he continued, the FCC would expand its pilot project by releasing the text of all six issues that the FCC will consider at its March open meeting. "Allowing anyone, anywhere to see these documents publicly is another step towards shedding more sunlight on the FCC's operations," Pai added.

Commenting on FCC process reform in 2014, the ARRL said, "The Commission's decision-making process must not only be fair, it must be perceived as fair."

While no Amateur Radio issues are up for consideration at the March 23 open meeting, the FCC will address a proposal to combat robocalls — the top source of consumer complaints to the FCC.

"These calls are not just a nuisance; they're often scams," Pai said. He pointed out that while rules already exist to prohibit such unwanted calls, "scofflaws are finding creative ways to avoid getting caught," Pai said. The FCC's **Robocall Strike Force**, which has been working to come up with solutions, has singled out the issue of caller ID spoofing, which is designed to trick consumers into answering unwanted calls. "And under the FCC's current rules, which generally prevent call-blocking, there is not much that carriers can do to stop this," Pai said. He wants to give the Commission greater leeway to block spoofed robocalls.

In announcing his moves toward greater transparency, Pai thanked House Energy and Commerce Committee Chairman Greg Walden W7EQI (R-OR); Rep. Adam Kinzinger (R-IL), and Sen. Dean Heller (R-NV) — the original sponsors of the FCC Process Reform Act, the legislation including this change, which passed the House last week. Kinzinger is the sponsor of the Amateur Radio Parity Act of 2017 (H.R. 555).

Pai subsequently expanded on his process reform initiative, pledging to "share with every Commissioner's office every item that will be considered at an open meeting before anyone in my office discusses the content of those items publicly or the FCC releases the text of those documents." The FCC also will release one-page fact sheets summarizing each proceeding on the meeting agenda. Pai said the FCC would implement a suggestion from Commissioner Michael O'Rielly that called for a member of the Commission, rather than FCC staff, to propose any substantive edits made to an item between the time it is circulated and the meeting at which it is heard.

Maritime Radio Day will take place in mid-April, with activity — all on CW — centering on International Naval Frequencies, 1824; 3520; 7020; 10118; 14052; 21052, and 28052 kHz. Maritime Radio Day is held annually to commemorate nearly 100 years of CW maritime wireless service. [Register](http://www.seefunk-fx-intern.de/mrdaward/mrd_registry.php) online at http://www.seefunk-fx-intern.de/mrdaward/mrd_registry.php

The event gets under way at 1200 UTC on April 14th and concludes at 2200 UTC on April 15th. Participants exchange QSA (signal strength, 1-5), QRK (readability, 1-5), name, call sign of last or favorite ship/aircraft/maintenance company and "additionally a tr, msg and/or a QTC, if you like." SWLs are welcome to take part. A newly designed certificate of participation will be available.

Submit logs by May 1 via [e-mail](mailto:info@seefunk-fx-intern.de) to Rolf Marschner, DL9CM, or Narzissenweg 10, 53359 Rheinbach, Germany.

— David Ring N1EA



If you've downloaded the **WASHRag** from the N3SH web site, or picked up a copy from a friend... you can sign up to have the PDF copy sent directly to your email. You **do NOT** have to be a member of **WASH**!

Just send an email to wa3sh-subscribe@yahoogroups.com and the automation should take care of the rest!

Has Roadway found the tower yet?

STANAG 4285 On 40 Meters, Other Intruders

American Radio Relay League, IARU Region 1 Monitoring System

Newington, CT, March 30th, 2017 — A STANAG 4285 intruder has been showing up on 7101.8 kHz, according to the International Amateur Radio Union (IARU) Region 1 Monitoring System (IARUMS).

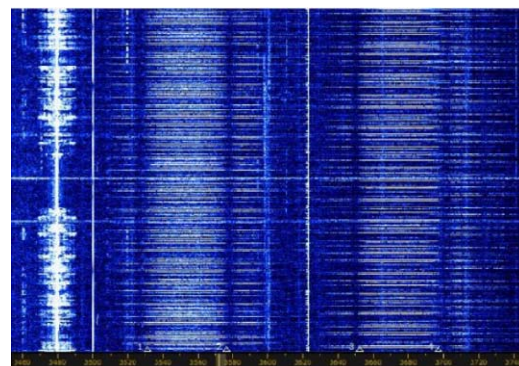
"The signal was strong in South America, but rather weak in Europe," the latest edition of the IARUMS newsletter reported. "We had the same problem in earlier times. Location probably Falkland Islands."

Its unusual designation aside, STANAG 4285's motorboat-like signals are pretty common on HF frequencies between about 2 MHz and 23 MHz. It is the data communication "modem" that North Atlantic Treaty Organization (NATO) military agencies use for the purposes of standardization, and it comes in several flavors (sub-modes), with a variety of speeds — from 75 bps to 3600 bps — and interleaving, both short and long. BPSK, QPSK, and 8PSK are used with STANAG 4285 for specific speeds. The waveform consists of an 1800-Hz carrier with PSK modulation.

It's not unusual to hear STANAG-4285 signals around the world, not all of them from NATO stations. Most of the traffic is encrypted, but sometimes it is not, and software is available on the Internet to decode it.

IARUMS further reported that a Russian Air Force F1B (frequency-shift keying) intruder (REA4) was showing up on 7.018 MHz during February, but another F1B intruder on 7.193 MHz from Kaliningrad, Russia, was no longer active at the end of February. German telecommunication authorities had filed a formal complaint. No complaint is possible regarding another Russian F1B signal on 14.308 MHz, however; it is legal under a footnote to the ITU Radio Regulations that allocates 14.250 to 14.350 MHz to the fixed service on a primary basis in Armenia, Azerbaijan, China, Côte d'Ivoire, the Russian Federation, Georgia, Iran, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan, and Ukraine. Reported splatter from Radio France International on 7.205 MHz has been cleared up.

An over-the-horizon radar from Asia is reported to be covering parts of 80 meters daily. Its likely location is China. A Chinese broadband OTH radar was observed on 20 meters, while the Russian systems-intelligence "Konteyner RLS" OTH radar, transmitting from in the Nizhny Novgorod region, is frequently spotted on 20 meters. It was reported disturbing parts of 40 and 20 meters, covering a 13-kHz swath of spectrum. Radio Hargaysa in Somalia is still being heard on 7.120 MHz, but the 7.175 MHz Radio Eritrea signal that was being interfered with from Ethiopia apparently is gone. Radio Taiwan and a Chinese jammer are being heard on 14.295 MHz.



Over The Horizon radar signal, possibly from China, as observed on 80 meters (courtesy of Wolf Hadel DK2OM)

A Few More March Meeting Photos

Courtesy of & ©Copyright 2017 Ron Notarius W3WN



Just a few more shots of before, during and after the meeting (and pizza). And a warm welcome and thanks for coming to our guests Rich KD8PHF and Larry N3JFQ



KC3IRH selecting the 50/50, er, membership contribution ticket from Carol KB3GMN



Two Rivers ARC 46th Annual Hamfest

Sunday, April 23rd, 2017, 8:00 AM—2:00 PM

The Spectrum

6001 Smithfield Street, Boston PA 15135

(Off of PA Route 48 near the city of McKeesport)

Talk-in on 146.730 — Mobile Check In 146.52

Admission \$5

More Information at <http://www.trarc.net>



63rd Annual BreezeShooters Hamfest & Computer Show



Sunday, June 4th, 2017 8:00 AM to 3:00 PM

at the Big Butler Fairgrounds,

1127 New Castle Road (US 422), Prospect PA 16052

\$5 Per Person Admission Donation

Indoor Tables & Tailgate / Flea Market Spaces Available

Flea Market spaces \$10 for the first space, \$5 for each additional space

Fairgrounds open at 5 PM June 3rd for Vendor & Tailgate Setup

14 Main Prizes

11 Half Hour Prizes (based on Admission Tickets)

Indoor Tables \$20 per table and may be reserved by contacting

Bob at (724) 410-1028

Or mail reservations to PO Box 101018, Pittsburgh PA 15237

Table reservation cut-off date May 20th, 2017

Download directions & the latest flyer from the BreezeShooters Web Site at

<http://www.breezeshooters.net> or email hamfest2017@breezeshooters.org

North Hills ARC 32nd Annual Hamfest

Saturday, July 15th, 2017, 8:00 AM—12:00 PM

Parkwood Presbyterian Church

4289 Mt. Royal Blvd, Allison Park, PA 15101

Talk-in on 147.09 PL 88.5

Admission \$5

More Information at <http://nharc.org>





WIRELESS ASSOCIATION OF SOUTH HILLS, INC.

Membership Application, New or Renewal



I would like to join WASH! I am interested in the following type of membership: ☐ **New Membership** ☐ **Membership Renewal**

(check quarter →)

(check one !)

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Jan-Mar

☐ **2nd Qtr**
Apr-Jun

☐ **3rd Qtr**
Jul-Sept

☐ **4th Qtr**
Oct-Dec

☐ (F1) Full Membership:

\$20.00

\$15.00

\$10.00

\$5.00

☐ (F2) Full Membership < 18 or > 65 yrs of age:

\$10.00

\$7.50

\$5.00

\$2.50

☐ (A1) Associate Membership:

\$10.00

\$7.50

\$5.00

\$2.50

☐ (FM1) Family Membership (\$3.00 x No. of household family members): \$ _____

Name(s): _____

Name: _____

Address: _____

City, State: _____

Home Phone: _____

Email Address: _____

New Members Only:

☐ I do NOT want to be added to the Club E-Mail Reflector

☐ I do NOT want to be added to the Electronic Newsletter Mailing List

[If you have an Email address, you Will be added to both lists UNLESS you choose to Opt-Out]

Signature: _____

Call Sign: _____

License Class: _____

Expires On: _____

Work Phone: _____

Birthday: _____

ARRL Member? ☐ Yes ☐ No Family ARRL Member? ☐ Yes ☐ No

Date: _____

Amount Enclosed: \$ _____

N3RDV has requested that all membership requests and renewals include an application so that his information is up to date

Please make your check or money order payable to the club treasurer, Mark Stabryla.
The Wireless Association of South Hills, Inc. reserves the right to accept or reject new memberships or renewals.
Please return completed membership form along with check/money order to the club treasurer or mail to:

WIRELESS ASSOCIATION OF SOUTH HILLS, INC.
c/o Mark Stabryla N3RDV, VP/Treasurer
1120 McKnight Drive
Bethel Park, PA 15102-2456



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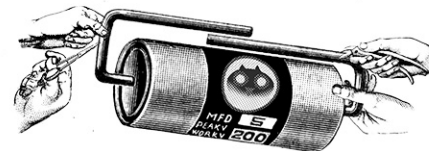
The Daily DX, 3025 Hobbs Road,
Glenwood, MD 21738 Phone: 301-854-5650



Arhhh!
What Mightst We Draw For Ye, Matey?



HANDMADE BY GNOMES.



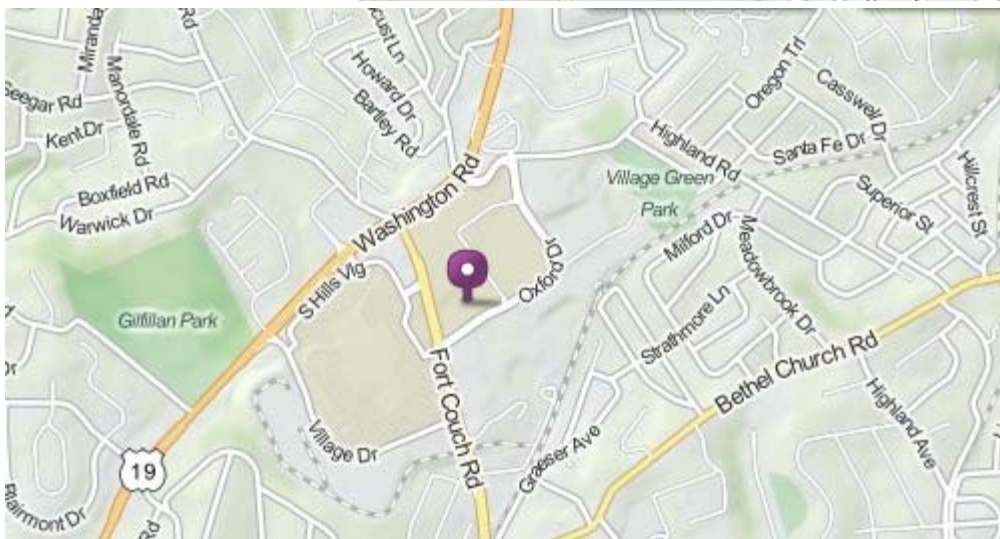
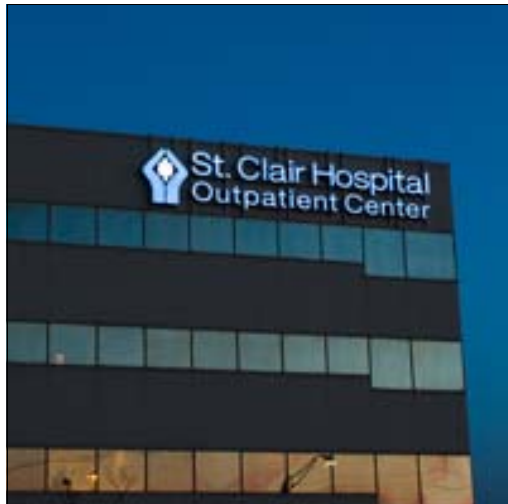
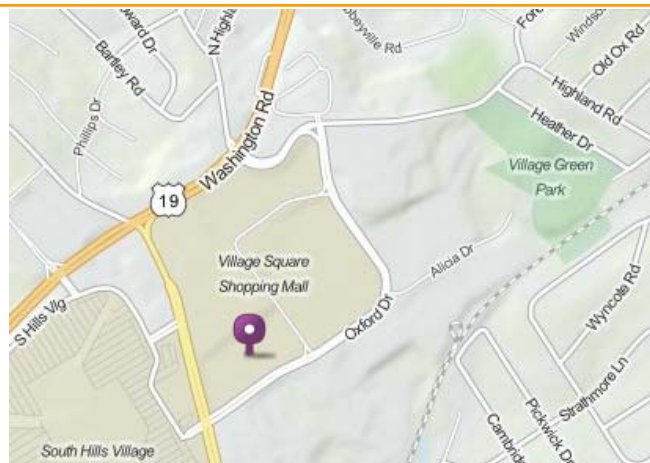
2017 WASH Meeting

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Adjacent to Village Square Mall, across Ft. Couch Road from
South Hills Village Mall, just off of US Route 19



The WASHRag

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Ron Notarius W3WN, Editor

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